AMENDMENTS TO THE CLAIMS

1-67. (Cancelled).

68. (**Withdrawn**) A *Helicobacter pylori* binding substance comprising terminal oligosaccharide sequence

$[Hex1\ (A)_{q1}(NAc)_{r1}\alpha/\beta3]_sGal(NAc)_{r2}\beta4Glc(A)_{q2}(NAc)_{r3}$

wherein q1, q2, r1, r2, r3, and s are each independently 0 or 1 so that at least r2 or q2 is 1;

Hex1 is galactose (Gal), glucose (Glc) or Mannose (Man);

and analogs or derivatives of said oligosaccharide sequence having binding activity to *Helicobacter pylori* for the prophylaxis or treatment of any condition due to the presence of *Helicobacter pylori* in a subject.

69. (**Withdrawn**) The *Helicobacter pylori* binding substance according to claim 68 further comprising $\beta6Hex3(NAc)_{r5}$ or $\beta3Hex3(NAc)_{r5}$ structure in the reducing end of the oligosaccharide sequence forming the following structure

$[Hex1\ (A)_{q1}(NAc)_{r1}\alpha/\beta3]_sGal(NAc)_{r2}\beta4Glc(A)_{q2}(NAc)_{r3}\beta6/\beta3Hex3(A)_{r4}(NAc)_{r5}$

wherein q1, q2, r1, r2, r3, s and Hex1 are as defined in claim 68, r4 and r5 are independently 0 or 1; Hex3 is mannose (Man), galactose (Gal) or glucose (Glc).

70. (**Withdrawn**) A *Helicobacter pylori* binding substance comprising oligosaccharide sequence

$Glc(A)_{q1}(NAc)_{r1}\beta3Gal\ \beta4\ Glc(NAc)_{r3}\beta6Hex3(NAc)_{r5}$

wherein q1, r1, and r3 are defined in claim 68, r5 and Hex3 are as defined in claim 69.

71. (**Withdrawn**) The *Helicobacter pylori* binding substance according to claim 68 wherein said oligosaccharide sequence is a natural type chondroitin sequence according to the following structure

$[GlcA\beta3]_sGalNAc\beta4GlcA[\beta3GalNAc]_u$

wherein s and u are as defined above with the proviso that either s or u is 1.

72. (**Withdrawn**) A *Helicobacter pylori* binding substance comprising at least one terminal oligosaccharide sequence selected from the group consisting of:

Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glc,
Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAc,
Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAc,
Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAc,

GlcAβ3GalNAcβ4GlcA,
GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,
GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,
GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA

GalNAcβ4GlcAβ3GalNAcβ4GlcA,
GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,
GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAc,
GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAc,
GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAc

GalNAcβ4Glc, and
GalNAcβ4GlcA

73. (**Withdrawn**) Use of a *Helicobacter pylori* binding substance comprising terminal oligosaccharide sequence

$[Hex1(A)_{q1}(NAc)_{r1}\alpha/\beta3]_sGal(NAc)_{r2}\beta4Glc(A)_{q2}(NAc)_{r3}$

wherein q1, q2, r1, r2, r3, and s are each independently 0 or 1 so that at least r2 or q2 is 1;

Hex1 is galactose (Gal), glucose (Glc) or mannose (Man);

and analogs or derivatives of said oligosaccharide sequence having binding activity to *Helicobacter pylori* for the production of a pharmaceutical composition for the treatment of any condition due to the infection of *Helicobacter pylori*.

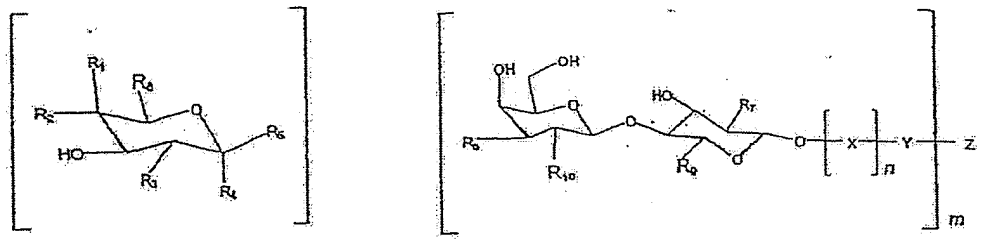
74. (**Withdrawn**) A pharmaceutical composition comprising the substance according to claim 68 for the treatment of any condition due to the presence of *Helicobacter pylori*.

75. (**Withdrawn**) The pharmaceutical composition according to claim 74 for the treatment of chronic superficial gastritis, gastric ulcer, duodenal ulcer, gastric adenocarcinoma, non-Hodgkin lymphoma in human stomach, liver disease, pancreatic disease, skin disease, heart disease, or autoimmune diseases including autoimmune gastritis and pernicious anaemia and non-steroid anti-inflammatory drug (NSAID) related gastric disease, or for prevention of sudden infant death syndrome.

76. (**Withdrawn**) A nutritional additive or composition containing the substance according to claim 68.

77. (**Withdrawn**) The substance accordingly to claim 68 for the use in *Helicobacter pylori* binding assays.

78. (**Withdrawn**) A *Helicobacter pylori* binding substance comprising an oligosaccharide sequence according to Formula 9



A-saccharide B-saccharide

wherein integers 1, m, and n have values m = 1, 1 and n are independently 0 or 1; R_1 is H and R_2 is OH, or R_1 is OH and R_2 is H, or R_1 is H and R_2 is a monosaccharidyl- or oligosaccharidyl- group, preferably a beta glycosidically linked galactosyl group, R_3 is independently -OH or acetamido (-$NHCOCH_3$) or an acetamido analogous group, R_7 is acetamido (-$NHCOCH_3$) or an acetamido analogous group; when 1=1, R_4 is -H and R_5 is oxygen linked to bond R_6 and forms a beta anomeric glycosidic linkage to saccharide B, or R_5 and -H and R_4 is oxygen linked to bond R_6 and forms an alpha anomeric glycosidic linkage to saccharide B; when 1=0, R_6 is -OH linked to B; X is monosaccharide or oligosaccharide residue, X is lactosyl-, glactosyl-, poly-N-acetyl-lactosaminyl, or part of an O-glycan or an N-glycan oligosaccharide sequence; Y is a spacer group or a terminal conjugate such a ceramide lipid

moiety or a linkage to Z; Z is an oligovalent or polyvalent carrier; the oxygen linkage (-O-) between C1 or the B saccharide and saccharde residue X or spacer group Y can be replaced by carbon (-C-), nitrogen (-N-) or sulphur (-S-) linkage; R_8 and R_9 are independently carboxylic acid amide, such as methylamide or ethyalamide, hydroxymethyl (-CH_2-OH) or a carboxylic acid group or an ester thereof, such as methyl or ethyl ester; R_3, R_7, and R_{10} are independently hydroxyl, acetamido or acetamido group mimicking group, such as C_{1-6} alkyl-amides, arylamido, secondary amine, preferentially N-ethyl or N-methyl, O-acetyl, or O-alkyl for example O-ethyl or O-methyl.

79. (**Withdrawn**) A functional food comprising substances according to claim 68.

80. (**Withdrawn**) The functional food according to claim 79, wherein said food is selected from the group consisting of animal feed, infant formula and beverage.

81. (**Withdrawn**) Helicobacter pylori binding substance

$[Hex1(A)_{q1}(NAc)_{r1}y3]_{s1}Gal(NAc)_{r2}\beta4Glc(A)_{q2}(NAc)_{r3}$

wherin q1, q2, r1, r2, r3, and s1, are independently 0 or 1,

and Hex1, and Hex2 is a hexose structures, preferably galactose (Gal) or glucose (Glc), which may be further modified by the A and/or NAC groups, y is either alpha or beta indicatng the anoeric structure of the terminal monosaccharide residue with the provisions that at least r2 is 1 or q2 is 1 and

that A indicates that glucuronamide when at least q1 or q2 is 1

or when s1 is 0, then

q2 is 1 and r2 is 0

or q2 and r2 and r3 are 1

or q2 and r2 are 1, r3 is 0 and A indicates a glucuronamide;

or when s is 1 then r2 is 1 then at least q1 is 1 or q2 is 1

with the provision that the molecule dose not comprise two non-derivatized β-linked glucuronic acid units.

82. (**Currently Amended**) A method for the treatment or ~~prevention~~ inhibition of a condition due to or caused by the ~~present~~ presence of *Helicobacter pylori*, comprising

administering to a subject in need of such treatment or inhibition ~~wherein~~ a pharmaceutically effective amount of ~~the substance according to claim 68 or 72 is administered to a subject in need of such a treatment~~

(a) a *Helicobacter pylori* binding substance comprising terminal oligosaccharide sequence [Hex1 $(A)_{q1}(NAc)_{r1}\alpha/\beta3]_sGal(NAc)_{r2}\beta4Glc(A)_{q2}(NAc)_{r3}$

wherein q1, q2, r1, r2, r3, and s are each independently 0 or 1 so that at least r2 or q2 is 1;

Hex1 is galactose (Gal), glucose (Glc) or Mannose (Man),

and analogs or derivatives of said terminal oligosaccharide sequence having binding activity to *Helicobacter pylori* and comprising structures selected from the group consisting of: acetamido group mimicking group being another amide, amide derivatives from carboxylic acid group of the terminal uronic acid, or oligosaccharide structures having the same or similar conformations with said terminal oligosaccharide sequence, or

(b) a *Helicobacter pylori* binding substance comprising at least one terminal oligosaccharide sequence selected from the group consisting of:

Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAc,

GlcAβ3GalNAcβ4GlcA,

GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA

GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAc,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAc,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAc

GalNAcβ4Glc, and

GalNAcβ4GlcA.

83. (Previously Presented) The method according to claim 82, wherein said condition is selected from the group consisting of chronic superficial gastritis, gastric ulcer, duodenal ulcer, gastric adenocarcinoma, non-Hodgkin lymphoma in human stomach, liver disease, pancreatic disease, skin disease, heart disease, or autoimmune diseases including autoimmune gastritis and pernicious anaemia and non-steroid anti-inflammatory drug (NSAID) related gastric disease, and sudden infant death syndrome.

84. (**Withdrawn – Currently Amended**) ~~Method~~ A method of binding to *Helicobacter pylori* comprising ~~the steps of~~

contacting ~~the substance according to claim 68 or 72~~

(a) a *Helicobacter pylori* binding substance comprising terminal oligosaccharide sequence [Hex1 $(A)_{q1}(NAc)_{r1}\alpha/\beta3]_sGal(NAc)_{r2}\beta4Glc(A)_{q2}(NAc)_{r3}$

wherein q1, q2, r1, r2, r3, and s are each independently 0 or 1 so that at least r2 or q2 is 1;

Hex1 is galactose (Gal), glucose (Glc) or Mannose (Man),

and analogs or derivatives of said terminal oligosaccharide sequence having binding activity to *Helicobacter pylori* and comprising structures selected from the group consisting of: acetamido group mimicking group being another amide, amide derivatives from carboxylic acid group of the terminal uronic acid, or oligosaccharide structures having the same or similar conformations with said terminal oligosaccharide sequence, or

(b) a *Helicobacter pylori* binding substance comprising at least one terminal oligosaccharide sequence selected from the group consisting of:

Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAc,

GlcAβ3GalNAcβ4GlcA,

GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA

GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAc,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAc,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAc

GalNAcβ4Glc, and

GalNAcβ4GlcA,

with a sample known to or suspected to contain *Helicobacter pylori* and detecting a complex or *Helicobacter pylori* and said substance.

85. (New) The method according to claim 82, wherein said analogs or derivatives of said terminal oligosaccharide sequences comprise structures selected from the group consisting of alkylamido, arylamido and secondary amine.

86. (New) The method according to claim 82, wherein said analogs or derivatives of said terminal oligosaccharide sequences comprise structures selected from the group consisting of N-ethyl, N-methyl, O-acetyl and O-alkyl.

87. (New) The method according to claim 82, wherein said analogs or derivatives of said terminal oligosaccharide sequences comprise structures selected from the group consisting of O-ethyl and O-methyl.

88. (New) The method according to claim 82, wherein said analogs or derivatives of said terminal oligosaccharide sequences are derivatized to one or several of the hydroxyl or acetamido groups of the oligosaccharide sequence.

89. (New) The method according to claim 82, wherein said method comprises administering (a) the *Helicobacter pylori* binding substance comprising terminal oligosaccharide sequence $[Hex1\ (A)_{q1}(NAc)_{r1}\alpha/\beta3]_sGal(NAc)_{r2}\beta4Glc(A)_{q2}(NAc)_{r3}$

wherein q1, q2, r1, r2, r3, and s are each independently 0 or 1 so that at least r2 or q2 is 1;

Hex1 is galactose (Gal), glucose (Glc) or Mannose (Man).

90. (New) The method according to claim 82, wherein said method comprises administering (b) the *Helicobacter pylori* binding substance comprising at least one terminal oligosaccharide sequence selected from the group consisting of:

Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAc,

GlcAβ3GalNAcβ4GlcA,

GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA

GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAc,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAc,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAc

GalNAcβ4Glc, and

GalNAcβ4GlcA.

91. (New) The method according to claim 84, wherein said analogs or derivatives of said terminal oligosaccharide sequences comprise structures selected from the group consisting of alkylamido, arylamido and secondary amine.

92. (New) The method according to claim 84, wherein said analogs or derivatives of said terminal oligosaccharide sequences comprise structures selected from the group consisting of N-ethyl, N-methyl, O-acetyl and O-alkyl.

93. (New) The method according to claim 84, wherein said analogs or derivatives of said terminal oligosaccharide sequences comprise structures selected from the group consisting of O-ethyl and O-methyl.

94. (New) The method according to claim 84, wherein said analogs or derivatives of said terminal oligosaccharide sequences are derivatized to one or several of the hydroxyl or acetamido groups of the oligosaccharide sequence.

95. (New) The method according to claim 84, wherein said method comprises contacting (a) the *Helicobacter pylori* binding substance comprising terminal oligosaccharide sequence $[Hex1\ (A)_{q1}(NAc)_{r1}\alpha/\beta3]_sGal(NAc)_{r2}\beta4Glc(A)_{q2}(NAc)_{r3}$

wherein q1, q2, r1, r2, r3, and s are each independently 0 or 1 so that at least r2 or q2 is 1; Hex1 is galactose (Gal), glucose (Glc) or Mannose (Man).

with said sample known to or suspected to contain *Helicobacter pylori* and detecting said complex or *Helicobacter pylori* and said substance.

96. (New) The method according to claim 84, wherein said method comprises contacting (b) the *Helicobacter pylori* binding substance comprising at least one terminal oligosaccharide sequence selected from the group consisting of:

Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glc,

Glcβ3GalNAcβ4Glcβ3GalNAc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAc,

Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAcβ4Glcβ3GalNAc,

GlcAβ3GalNAcβ4GlcA,

GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA

GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcA,

GalNAcβ4GlcAβ3GalNAc,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAc,

GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAcβ4GlcAβ3GalNAc

GalNAcβ4Glc, and

GalNAcβ4GlcA.

with said sample known to or suspected to contain *Helicobacter pylori* and detecting said complex or *Helicobacter pylori* and said substance.

97. (New) The method according to claim 82, wherein said treatment is a prophylactic treatment.